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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,511	02/25/2002	Szeming Cheng	9432-000170	2978
27572	7590	07/20/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			HENNING, MATTHEW T	
			ART UNIT	PAPER NUMBER
			2131	

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/082,511		CHENG ET AL.	
	Examiner		Art Unit	
	Matthew T. Henning		2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-14, 17 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-14, 17 and 20-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1 This action is in response to the communication filed 4/28/2006.

2 **DETAILED ACTION**

3 *Continued Examination Under 37 CFR 1.114*

4 A request for continued examination under 37 CFR 1.114, including the fee set forth in
5 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is
6 eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)
7 has been timely paid, the finality of the previous Office action has been withdrawn pursuant to
8 37 CFR 1.114. Applicant's submission filed on 4/28/2006 has been entered.

9
10 *Response to Arguments*

11 Applicant's arguments filed 4/28/2006 have been fully considered but they are not
12 persuasive.

13 Regarding applicants' argument that the cited art "performs manipulation between
14 consecutive signals" the examiner does not find the argument persuasive. The claim language
15 recites that the difference of **every pair** of consecutive samples be taken. The applicants' appear
16 to believe that this means that a difference between sample1 and sample2 will be taken and a
17 difference between sample3 and sample4 will be taken but not between sample2 and sample3.
18 However, this is not correct as sample2 and sample3 are consecutive samples and therefore the
19 claim requires that the difference between the two be taken. However, there is no
20 "manipulation" performed "across pairs" (i.e. difference between the pairs, (a, b) – (c, d)). As
21 such, the examiner does not find the argument persuasive.

6 Regarding applicants' argument that the cited art does not alternate the sign of every
7 difference value, the argument is moot in view of new grounds of rejection.

8 Claims 1-4, 7-14, 17, and 20-26 have been examined and claims 5-6, 15-16, and 18-19
9 have been cancelled.

10 All objections and rejections not presented below have been withdrawn.

11 *Drawings*

13 The drawings are objected to under 37 CFR 1.83(a). The drawings must show every
14 feature of the invention specified in the claims. Therefore, the “taking the difference of every
15 pair of two consecutive samples...without performing manipulation across pairs”, and the use of
16 the formulas of claims 24-26 must be shown or the feature(s) canceled from the claim(s). No
17 new matter should be entered.

18 Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to
19 the Office action to avoid abandonment of the application. Any amended replacement drawing
20 sheet should include all of the figures appearing on the immediate prior version of the sheet,
21 even if only one figure is being amended. The figure or figure number of an amended drawing
22 should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure

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1 must be removed from the replacement sheet, and where necessary, the remaining figures must
2 be renumbered and appropriate changes made to the brief description of the several views of the
3 drawings for consistency. Additional replacement sheets may be necessary to show the
4 renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an
5 application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"
6 pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will
7 be notified and informed of any required corrective action in the next Office action. The
8 objection to the drawings will not be held in abeyance.

9 *Specification*

10 The amendment filed 4/28/2006 is objected to under 35 U.S.C. 132(a) because it
11 introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall
12 introduce new matter into the disclosure of the invention. The added material which is not
13 supported by the original disclosure is as follows: The specification lacks support for the
14 limitation of "without performing manipulation across pairs", and further lacks support for the
15 equations of claims 24 and 26.

16 Applicant is required to cancel the new matter in the reply to this Office Action.

17 *Claim Rejections - 35 USC § 112*

18 The following is a quotation of the first paragraph of 35 U.S.C. 112:

19 The specification shall contain a written description of the invention, and of the manner and process of making
20 and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
21 pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
22 contemplated by the inventor of carrying out his invention.
23

24 Claims 1-4, 7-14, 17, and 20-26 are rejected under 35 U.S.C. 112, first paragraph, as
25 failing to comply with the written description requirement. The claim(s) contains subject matter

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1 which was not described in the specification in such a way as to reasonably convey to one skilled
2 in the relevant art that the inventor(s), at the time the application was filed, had possession of the
3 claimed invention. Claims 1, 8, and 10 all contain the limitation of “without performing
4 manipulation across pairs”, which there is no mention of in the specification. Furthermore,
5 newly added claims 24 and 26 recite a formula of which the specification is silent. As such, one
6 of ordinary skill in the art would have been unable to ascertain whether the inventors possessed
7 the invention as claimed at the time of invention.

8 The following is a quotation of the second paragraph of 35 U.S.C. 112:

9 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
10 subject matter which the applicant regards as his invention.
11

12 Claims 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for
13 failing to particularly point out and distinctly claim the subject matter which applicant regards as
14 the invention.

15 The claims recite numerous “variables” for which there is insufficient antecedent basis in
16 the claims.

17 ***Claim Rejections - 35 USC § 103***

18 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
19 obviousness rejections set forth in this Office action:

20 *A patent may not be obtained though the invention is not identically disclosed or*
21 *described as set forth in section 102 of this title, if the differences between the subject matter*
22 *sought to be patented and the prior art are such that the subject matter as a whole would have*
23 *been obvious at the time the invention was made to a person having ordinary skill in the art to*
24 *which said subject matter pertains. Patentability shall not be negatived by the manner in which*
25 *the invention was made.*
26

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1 Claims 1-4, 8-14, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable
2 over Neubauer et al. ("Audio Watermarking of MPEG-2 AAC Bit Streams") hereinafter referred
3 to as Neubauer, and further in view of Cox et al. ("Secure Spread Spectrum Watermarking for
4 Multimedia") hereinafter referred to as Cox, and further in view of Birks et al. (US Patent
5 Number 6,373,530) hereinafter referred to as Birks, , and further in view of Sprague (US Patent
6 Number 4,617,645), and further in view of Brody et al. (US Patent Number 6,718,501).

7
8 Regarding claims 1, 8, and 10, Neubauer disclosed an encoding apparatus for embedding
9 data in a compressed data stream (See Neubauer Fig. 7), the apparatus comprising: a decoder
10 receptive of the compressed data stream and operable to decode the compressed data stream,
11 thereby obtaining a decoded data stream (See Neubauer Fig. 8 and Page 5 Section 4.1 Especially
12 "Parts of Decoder"); a data embedder in communication with said decoder and receptive of the
13 data and the decoded data stream, said data embedder operable to embed the data into the data
14 stream using a spread spectrum technique, thereby obtaining a data-embedded decoded data
15 stream (See Neubauer Fig. 8 and Section 4.1 Especially "Watermark Generator" and "Weighting
16 and Adding"); and a encoder in communication with said data embedder, said encoder operable
17 to encode the data-embedded decoded data stream, thereby obtaining a data-embedded
18 compressed data stream (See Neubauer Fig. 8 and Section 4.1 Especially "Parts of Encoder"),
19 however, Neubauer failed to disclose partially decoding the stream and spread spectrum
20 embedding in the quantized indices, sorting the stream in ascending or descending order, taking
21 the difference of every pair of consecutive samples as a new partially decoded data stream,

1 alternating the sign of every other difference value, and substituting the new partially decoded
2 data stream for the partially decoded data stream.

3 Cox teaches a method for embedding data into quantized indices of multimedia (See Cox
4 Pages 1676-1678 Section III).

5 Birks teaches that by in a system that watermarks encoded data, it is advantageous to
6 watermark the quantization indices as there is no need for inverse or forward transformation and
7 therefore less processing.

8 Sprague teaches a method for compressing audio data involving sorting the data in
9 descending order (See Sprague Claim 6), and then constructing a new set of data by taking the
10 difference between pairs of consecutive samples resulting in an alternating signed data (See
11 Sprague Col. 3 Lines 7-19).

12 Brody teaches that in an watermarking system, the watermark should be made perceptible
13 by alternating every other sign of the watermark data (See Brody Col. 22 Paragraph 2).

14 It would have been obvious to the ordinary person skilled in the art at the time of
15 invention to employ the teachings of Cox and Birks in the audio watermarking system of
16 Neubauer by only decoding the data partially and embedding the watermark data in the
17 quantization indices. This would have been obvious because the ordinary person skilled in the
18 art at the time of invention would have been motivated to reduce the amount of processing
19 required to embed and read the watermark.

20 It would have been obvious to the ordinary person skilled in the art at the time of
21 invention to employ the teachings of Sprague in the audio watermarking system of Neubauer,
22 Cox, and Birks by utilizing the compression system of Sprague for compressing the quantization

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1 indices. This would have been obvious because the ordinary person skilled in the art at the time
2 of invention would have been motivated to considerably compact the quantization indices.
3 Further, in this combination, the variance would be reduced as a result of taking the difference of
4 pairs of consecutive samples.

5 It further would have been obvious to the ordinary person skilled in the art at the time of
6 invention to employ the teachings of Brody in the watermarking system by alternating the sign of
7 every other watermark signal. This would have been obvious because the ordinary person
8 skilled in the art would have been motivated to have the watermark be perceptible.

9
10 Regarding claims 2 and 11, the combination of Neubauer, Cox, Birks, Sprague, and
11 Brody disclosed an index selector in communication with said partial decoder, said index
12 selector operable to select a plurality of the quantization indices, thereby obtaining selected
13 indices, and to determine respective amounts by which to modify the selected indices, wherein
14 said data embedder is operable to embed the data into the quantization indices by modifying the
15 selected indices according to the respective amounts, thereby obtaining a data-embedded
16 partially decoded data stream (See Cox Page 1677 Col. 2 Paragraph 2, and Neubauer Section 4.1,
17 “Watermark Generator” and “Weighting and Adding”).

18 Regarding claims 3, 12, and 13, the combination of Neubauer, Cox, Birks, Sprague, and
19 Brody disclosed that the index selector is operable to: choose indices corresponding to ranges
20 within a sensitive portion of a human sensory range; discard zero indices; and always determine
21 a minimum amount (See Cox Page 1677 Col. 2 Paragraph 2 and Section IV B (“Inserting and
22 Extracting the Watermark”).

1 Regarding claims 4, 9, and 14, the combination of Neubauer, Cox, Birks, Sprague, and
2 Brody disclosed that the data embedder is receptive of an encoding key and operable to embed
3 the data based on the encoding key (See Neubauer Page 2 Section "Robustness").

4 Regarding claims 24 and 26, the combination of Neubauer, Cox, Birks, Sprague, and
5 Brody disclosed that the enhanced sequence was derived in accordance with E (the equation of
6 claims 24 and 26) (See Sprague 3 Lines 7-23 and Brody Col. 22 Paragraph 2).

7 Regarding claim 25, the combination of Neubauer, Cox, Birks, Sprague, and Brody
8 disclosed extraction in accordance with E (the equation of claim 25) (See Neubauer Section
9 3.2.2).

10 Claims 7, 17, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over
11 Neubauer, Cox, Birks, Sprague, and Brody as applied to claims 1 and 10 above, and further in
12 view of Smyth et al. (US Patent Number 5,974,380) hereinafter referred to as Smyth.

13 Neubauer, Cox, Birks, Sprague, and Brody disclosed an audio stream watermarking
14 system (See the rejection of claim 1 above) in which "side information" was transmitted between
15 the decoder and the encoder (See Neubauer Fig. 8 and Page 4 Paragraph 2) however, Neubauer,
16 Cox, and Birks failed to disclose the specifics of the "side information".

17 Smyth teaches that in an audio Huffman coding system, "side information" includes bit
18 allocations, scale factors, PMODES, TMODES, and codebook (See Smyth Col. 36 Lines 45-50).

19 It would have been obvious to the ordinary person skilled in the art at the time of
20 invention to employ the teachings of Smyth in the watermarking system of Neubauer, Cox,
21 Birks, Sprague, and Brody by including the necessary information for coding and decoding in the
22 side information including the codebook. This would have been obvious because the ordinary

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persons skilled in the art at the time of invention would have been motivated to provide the side information that was common in the art.


Conclusion


Claims 1-4, 7-14, 17, and 20-26 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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